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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,326	03/26/2004	Frank M. Cerio JR.	TAZ-259	9467
37694 7590 07/20/2010 WOOD, HERRON & EVANS, LLP (TOKYO ELECTRON) 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202				
EXAMINER				
MCDONALD, RODNEY GLENN				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
07/20/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dgoodman@whepatent.com
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Office Action Summary

Application No.

10/811,326

Applicant(s)

CERIO ET AL.

Examiner

Rodney G. McDonald

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33,94 and 112-121 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33,94 and 112-121 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 33 and 115 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-19 of U.S. Pat. No. 7,642,201 teach depositing a barrier layer utilizing a Low Net Deposition (LND) step and utilizing a No Net Deposition (NND) step whereby a high density plasma is utilized and deposition controlled in the field area, the sidewalls, the bottom of the patterned substrate as required by claim 33 of the present application.

Regarding 115, Claims 1-19 of U.S. Pat. No. 7,642,201 suggest flowing an inert gas.

The difference is between the claims of U.S. Pat. 7,642,201 and the present claims is that the range with respect to the deposition rate is not discussed. However the ranges overlap with respect to the deposition rate which has been held to be a prima facie case of obviousness.

Claims 112 and 114 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201 as applies to claim 33 above, and further in view of Yasar et al. (US PG PUB. 2003/0034244).

The differences not yet discussed are the apparatus limitations. (Claims 112 and 114)

Regarding claims 112 and 114, Yasar et al. teach the required apparatus limitations in Figs. 3, 3A, 3B. (See Yasar et al. Figs. 3, 3A, 3B)

The motivation for utilizing Yasar et al. is that it allows for metallization of high aspect ratio vias. (Paragraph 0002)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the claims of U.S. Pat. 7,642,201 with the features of Yasar et al. because it allows for metallization of high aspect ratio vias.

Claim 113 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201 and further in view of Yasar et al. as applies to claims 33, 112 and 114 above, and further in view of Horii (U.S. Pat. 6,255,177).

The difference not yet discussed is the use of Ru. (Claim 113)

Regarding claim 113, Horii teach sputtering to produce a Ru layer. (Horii Column 6 lines 20-26)

The motivation for utilizing Horii is that it allows for producing an underlayer for copper. (Horii Column 6 lines 20-26)

Therefore, it would have been obvious to utilize the features of Horii because it allows for producing an underlayer for copper.

Claims 116 and 117 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201 as applies to claim 33 above, and further in view of Konishi (JP 09-360040).

The differences not yet discussed is the metal containing gas. (Claims 116, 117)

Regarding claims 116, 117, Konishi teach utilizing a metal containing gas during sputtering. The metal containing gas contains titanium. (See Abstract)

The motivation for utilizing the features of Konishi is that it allows for controlling composition of the deposited films. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Konishi because it allows for controlling composition of the deposited films.

Claims 94, 118 and 121 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201 in view of Horii (U.S. Pat. 6,255,177).

Claims 1-19 of U.S. Pat. No. 7,642,201 teach depositing a barrier layer utilizing a Low Net Deposition (LND) step and utilizing a No Net Deposition (NND) step whereby a high density plasma is utilized and deposition controlled in the field area, the sidewalls, the bottom of the patterned substrate as required by claim 94 of the present application.

Regarding 121, Claims 1-19 of U.S. Pat. No. 7,642,201 suggest flowing an inert gas.

The difference is between the claims of U.S. Pat. 7,642,201 and the present claims is that the range with respect to the deposition rate is not discussed (Claim 94) and utilizing Ru is not discussed (Claims 94, 118).

Regarding claim 94, The ranges overlap with respect to the deposition rate which has been held to be a prima facie case of obviousness.

Regarding claims 94, 118, Horii teach sputtering to produce a Ru layer. (Horii Column 6 lines 20-26)

The motivation for utilizing Horii is that it allows for producing an underlayer for copper. (Horii Column 6 lines 20-26)

Therefore, it would have been obvious to utilize the features of Horii because it allows for producing an underlayer for copper.

Claims 119 and 120 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7,642,201 in view of Horii as applies to claim 94 above, and further in view of Yasar et al. (US PG PUB. 2003/0034244).

The differences not yet discussed are the apparatus limitations. (Claims 112 and 114)

Regarding claims 119 and 120, Yasar et al. teach the required apparatus limitations in Figs. 3, 3A, 3B. (See Yasar et al. Figs. 3, 3A, 3B)

The motivation for utilizing Yasar et al. is that it allows for metallization of high aspect ratio vias. (Paragraph 0002)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Yasar et al. because it allows for metallization of high aspect ratio vias.

Response to Arguments

Applicant's arguments with respect to the previous 35 U.S.C. 103 rejections applied in the office action of February 17, 2010 are deemed persuasive and have been withdrawn. A new obviousness type double patenting rejection has been applied based on U.S. Pat. 7,642,201. It is the only rejection remaining and currently applied at this time. A timely filed terminal disclaimer will overcome the obviousness type double patenting rejection as discussed above.

This action will be made NON-FINAL based on the new rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-Th with every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rodney G. McDonald/
Primary Examiner, Art Unit 1795

Rodney G. McDonald
Primary Examiner
Art Unit 1795

RM
July 14, 2010